P.O. Box 340, Turtleford, SK, S0M 2Y0
Ph: 1-800-661-1663 Fx:1-877-845-3233
info@canada-training-group.ca

AC Generator Troubleshooting and Maintenance

Cost: $19500.00

This 5 day course will teach participants the electrical operation of DC, Single and Three Phase AC generators and how to maintain, test and troubleshoot them.

It is 50% hands on with a variety of generators supplied by Canada Training Group to complement the clients own equipment and is customized to the unique need of each client.

The instructors all have decades of experience with industrial generation and control.

Who Should Attend:
Anyone responsible for generators and their managers

You Will Be Able To:
Safely, efficiently and effectively maintain generators

ELECTRICAL FUNDAMENTALS
Objective:
SUBTOPICS:

- Direct Current (DC)
- Alternating Current (AC)
- Rectification
- Magnetism
- Electromagnetic Induction
- Elements of an Alternating Current Circuit
- Power in an Alternating Current
- Electrical Circuit (KVA, KW, Power Factor)
- AC Vs. DC Electric Generating Systems

DC GENERATORS
Objective:
SUBTOPICS:

- Components
- Operation
- Failure Modes
- Maintenance
- Testing

ALTERNATORS (SYNCHRONOUS GENERATORS)

Objective:
SUBTOPICS:

- Configurations
- Single and Three Phase Armatures
- Connections for Single and Three Phase Alternators
- Frequency and Frequency Regulation
- Voltage and Voltage Regulation
- Temperature and Environmental Considerations of Alternators
- Alternator Loading Considerations
- Considerations of Polyphase Induction Motor Starting on Engine-Generator Sets
- Application Considerations of Synchronous AC Generators to Nonlinear Electrical Loads

GENERATOR EXCITATION
Objective:
SUBTOPICS:

- Rotating Field
- DC Excitation
- Brushless Excitation

AUTOMATIC VOLTAGE REGULATORS
Objective:
SUBTOPICS:

- Generator Characteristics
- Manual Excitation Control
- Automatic Excitation Control
- Voltage Regulator Stability
- Types Of Sensing Circuits
- Power Input Circuit
- Frequency Compensation
- Fault Current Support – Excitation Support Systems
- Digital Excitation Technology
- Parallel Operation
- Power System Stabilizers

ENGINE PROTECTIVE CONTROLS
Objective:
SUBTOPICS:

- Basic Components
- Lubrication
- Cooling
- Overspeed
- Miscellaneous
- Alarms
- Shutdown
- Generator Instrumentation

GENERATOR SWITCHGEAR
Objective:
SUBTOPICS:

- Circuit Breaker Components
- Accessories and Modifications
- How to Select a Circuit Breaker
- Voltage Classifications
- Switchgear Types
- Applications

LOAD BANKS
Objective:
SUBTOPICS:

- Load Bank Applications
- Portable Load Banks
- Permanent Load Banks
- Radiator Load Banks
- Medium Voltage Load Banks
- Load Bank Controls

AUTOMATIC TRANSFER SWITCHES
Objective:
SUBTOPICS:

- Supplying Emergency Power
- Transferring Power
- Manual Devices
- Automatic Devices
- Controlling Automatic Transfer Switches
- Transferring Motor Loads with Automatic Transfer Switches
- Ground-Fault Protection
- Open Transition Transfer Switches
- Closed Transition Transfer Switches
- Automatic Transfer Systems
- Maintaining Emergency Power
- Transfer Systems
- System Faults
- Motor Load Considerations
- Testing
- Maintenance

PARALLELING GENERATORS
Objective:
SUBTOPICS:

- Electric Power System
- Parallel Operation of Generators
- The Control Strategy
- Synchronization
- Protective Strategy
- Failure Modes
- The Protective Relaying Scheme
- Islanding
- Suitable Protective Schemes
- Dedicated Interconnect Circuit

- Medium Voltage Interconnect

CONTROL & MONITORING SYSTEMS
Objective:
SUBTOPICS:

- Controls for On-Site Power Applications
- What Is A PLC?
- Components in PLC Control Systems
- PLC Operation
- System Architecture
- Redundant PLC Systems
- Data in PLC Memory
- PLC Software
- Operational Limits Of PLC Control Systems
- Testing PLC Control Systems
- Monitoring Systems
- Supervisory Control and Data Acquisition (SCADA) Systems
- Case Study: Water Treatment Plant
- Power System

TROUBLESHOOTING ON-SITE POWER GENERATION SYSTEMS
Objective:
SUBTOPICS:

- Applicability
- The Common Troubleshooting Process
- The Formal Troubleshooting Process
- Case Studies
- Conclusion
- Practical Troubleshooting Tools